# DISPLACEMENT

## D5 & D6 LVDT Displacement Transducer

- Infinite resolution
- High cycle life
- Stainless steel
- High accuracy
- Miniature

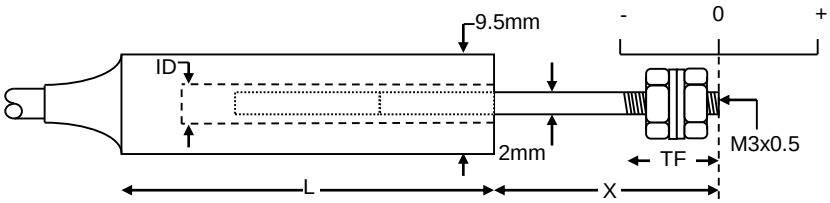
These transducers are for displacement / position measurement. They make an accurate position measurement of the movement of the armature (the sliding part) relative to the body of the displacement transducer.

This transducer uses the Linear Variable Differential Transformer (LVDT) principle which means that it is probably the most robust and reliable position sensor type available. The strength of the LVDT sensor's principle is that there is no electrical contact across the transducer position sensing element which for the user of the sensor means clean data, infinite resolution and a very long life.

The LVDTs are available as either unguided or spring return versions.

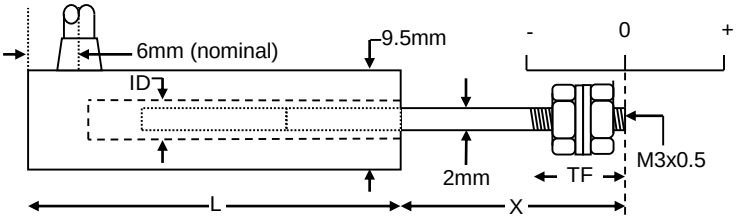
## Unguided version.

On our unguided LVDTs the armature assembly is a separate component, to make a measurement the user must guide the armature inside the body without touching the sides. Unguided position measurement transducers are appropriate where external guidance is available and give truly non-contact operation




### End (axial) exit cable.

| Type | Range | Linearity error (% F.S.) | L | X (nom) | ID | Total weight | Armature weight | TF | Inward over-travel | Sensitivity (nom) |
|---|---|---|---|---|---|---|---|---|---|---|
| D5/25HK | ±0.65mm | <±0.5/±0.25 | 35mm | 28mm | 3.17mm | 14g | 1.3g | 19mm | 7.9mm | 43mV/V |
| D6/02500U | ±2.5mm | <±0.5/±0.25/±0.1 | 43mm | 19mm | 2.90mm | 17g | 1.8g | 15mm | 1.5mm | 375mV/V |
| D6/05000U | ±5mm | <±0.5/±0.25/±0.1 | 56mm | 25mm | 2.90mm | 21g | 1.8g | 18mm | 2.0mm | 700mV/V |
| D5/300HK | ±7.5mm | <±0.5/±0.25/±0.1 | 58mm | 30mm | 2.54mm | 20g | 1.8g | 18mm | 3.9mm | 502mV/V |
| D5/400HK | ±10mm | <±0.5/±0.25 | 63mm | 33mm | 2.54mm | 26g | 1.9g | 18mm | 4.4mm | 576mV/V |
| MD5/500HK | ±12.5mm | <±0.5/±0.25 | 79mm | 35mm | 2.54mm | 34g | 2.3g | 18mm | 4.3mm | 775mV/V |
| MD5/1000HK | ±25mm | <±0.5/±0.25 | 114mm | 48mm | 2.54mm | 34g | 3.1g | 18mm | 4.1mm | 475mV/V |
| MD5/2000HK | ±50mm | <±0.5/±0.25 | 210mm | 74mm | 2.54mm | 62g | 5.3g | 18mm | 5.0mm | 535mV/V |
| MD5/3000HK | ±75mm | <±0.5/±0.25 | 298mm | 99mm | 2.54mm | 87g | 7.4g | 18mm | 5.0mm | 525mV/V |

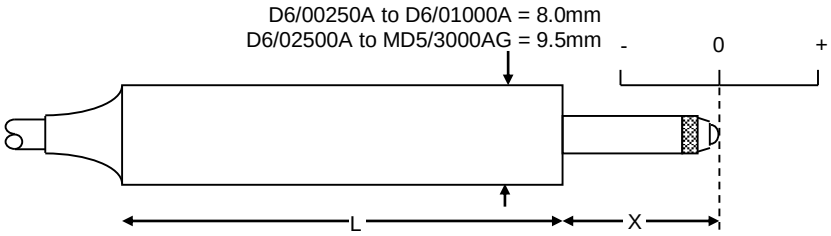



### Side (radial) exit cable.

| Type | Range | Linearity error (% F.S.) | L | X (nom) | ID | Total weight | Armature weight | TF | Inward over-travel | Sensitivity (nom) |
|---|---|---|---|---|---|---|---|---|---|---|
| D6/02500URA | ±2.5mm | <±0.5/±0.25/±0.1 | 45mm | 19mm | 2.92mm | 17g | 1.8g | 15mm | 1.5mm | 375mV/V |
| D6/05000URA | ±5mm | <±0.5/±0.25/±0.1 | 60mm | 25mm | 2.92mm | 21g | 1.8g | 18mm | 2.0mm | 700mV/V |
| D5/300HKRA | ±7.5mm | <±0.5/±0.25/±0.1 | 60mm | 30mm | 2.54mm | 20g | 1.8g | 18mm | 3.9mm | 502mV/V |
| D5/400HKRA | ±10mm | <±0.5/±0.25 | 65mm | 33mm | 2.54mm | 26g | 1.9g | 18mm | 4.4mm | 576mV/V |
| MD5/500HKRA | ±12.5mm | <±0.5/±0.25 | 81mm | 35mm | 2.54mm | 34g | 2.3g | 18mm | 4.3mm | 775mV/V |
| MD5/1000HKRA | ±25mm | <±0.5/±0.25 | 117mm | 48mm | 2.54mm | 34g | 3.1g | 18mm | 4.1mm | 475mV/V |
| MD5/2000HKRA | ±50mm | <±0.5/±0.25 | 212mm | 74mm | 2.54mm | 62g | 5.3g | 18mm | 5.0mm | 535mV/V |
| MD5/3000HKRA | ±75mm | <±0.5/±0.25 | 301mm | 99mm | 2.54mm | 87g | 7.4g | 18mm | 5.0mm | 525mV/V |

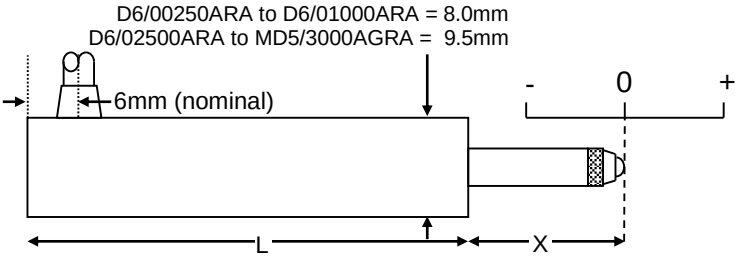
# Spring return version.

Our spring displacement transducer has bearings to guide the armature inside the measurement sensor and a spring which pushes the armature to the fully out position. Spring return LVDTs are appropriate where it is not possible to connect the transducer armature to the moving component being measured.




## End (axial) exit cable.

| Type | Range | Linearity error (% F.S.) | L | X (nom) | Total weight | Spring force at X | Spring rate | Inward over-travel | Outward over-travel | Sensitivity (nom) |
|---|---|---|---|---|---|---|---|---|---|---|
| D6/00250A | ±0.25mm | <±0.5/±0.25 | 49mm | 12mm | 11g | 0.6N | 1.2N/cm | 0.6mm | 0.6mm | 38mV/V |
| D6/00500A | ±0.5mm | <±0.5/±0.25 | 49mm | 12mm | 11g | 0.6N | 1.2N/cm | 0.3mm | 0.3mm | 75mV/V |
| D6/01000A | ±1mm | <±0.5/±0.25/±0.1 | 52mm | 13mm | 12g | 0.4N | 1.2N/cm | 1.8mm | 0.8mm | 150mV/V |
| D6/02500A | ±2.5mm | <±0.5/±0.25/±0.1 | 61mm | 12mm | 25g | 0.9N | 0.9N/cm | 1.3mm | 1.3mm | 375mV/V |
| D6/05000A | ±5mm | <±0.5/±0.25/±0.1 | 78mm | 12mm | 30g | 0.9N | 0.8N/cm | 1.1mm | 1.4mm | 700mV/V |
| D5/300AG | ±7.5mm | <±0.5/±0.25/±0.1 | 88mm | 15mm | 34g | 1.1N | 0.6N/cm | 1.1mm | 1.6mm | 502mV/V |
| D5/400AG | ±10mm | <±0.5/±0.25 | 99mm | 19mm | 40g | 1.4N | 0.4N/cm | 2.5mm | 1.3mm | 576mV/V |
| MD5/500AG | ±12.5mm | <±0.5/±0.25 | 121mm | 22mm | 48g | 1.4N | 0.4N/cm | 2.5mm | 1.3mm | 775mV/V |
| MD5/1000AG | ±25mm | <±0.5/±0.25 | 192mm | 36mm | 76g | 2.7N | 0.4N/cm | 1.2mm | 2.9mm | 475mV/V |
| MD5/2000AG | ±50mm | <±0.5/±0.25 | 349mm | 65mm | 138g | 4.5N | 0.4N/cm | 4.2mm | 3.2mm | 535mV/V |
| MD5/3000AG | ±75mm | <±0.5/±0.25 | 525mm | 100mm | 208g | 6.3N | 0.4N/cm | 5.0mm | 5.0mm | 525mV/V |




## Side (radial) exit cable.

| Type | Range | Linearity error (% F.S.) | L | X (nom) | Total weight | Spring force at X | Spring rate | Inward over-travel | Outward over-travel | Sensitivity (nom) |
|---|---|---|---|---|---|---|---|---|---|---|
| D6/00250ARA | ±0.25mm | <±0.5/±0.25 | 50mm | 12mm | 11g | 0.6N | 1.2N/cm | 0.6mm | 0.6mm | 38mV/V |
| D6/00500ARA | ±0.5mm | <±0.5/±0.25 | 50mm | 12mm | 11g | 0.6N | 1.2N/cm | 0.3mm | 0.3mm | 75mV/V |
| D6/01000ARA | ±1mm | <±0.5/±0.25/±0.1 | 53mm | 13mm | 12g | 0.4N | 1.2N/cm | 1.8mm | 0.8mm | 150mV/V |
| D6/02500ARA | ±2.5mm | <±0.5/±0.25/±0.1 | 64mm | 12mm | 25g | 0.9N | 0.9N/cm | 1.3mm | 1.3mm | 375mV/V |
| D6/05000ARA | ±5mm | <±0.5/±0.25/±0.1 | 83mm | 12mm | 30g | 0.9N | 0.8N/cm | 1.1mm | 1.4mm | 700mV/V |
| D5/300AGRA | ±7.5mm | <±0.5/±0.25/±0.1 | 90mm | 15mm | 34g | 1.1N | 0.6N/cm | 1.1mm | 1.6mm | 502mV/V |
| D5/400AGRA | ±10mm | <±0.5/±0.25 | 102mm | 19mm | 40g | 1.4N | 0.4N/cm | 2.5mm | 1.3mm | 576mV/V |
| MD5/500AGRA | ±12.5mm | <±0.5/±0.25 | 124mm | 22mm | 48g | 1.4N | 0.4N/cm | 2.5mm | 1.3mm | 775mV/V |
| MD5/1000AGRA | ±25mm | <±0.5/±0.25 | 195mm | 36mm | 76g | 2.7N | 0.4N/cm | 1.2mm | 2.9mm | 535mV/V |
| MD5/2000AGRA | ±50mm | <±0.5/±0.25 | 351mm | 65mm | 138g | 4.5N | 0.4N/cm | 4.2mm | 3.2mm | 535mV/V |
| MD5/3000AGRA | ±75mm | <±0.5/±0.25 | 527mm | 100mm | 208g | 6.3N | 0.4N/cm | 5.0mm | 5.0mm | 525mV/V |

| Specification | |
|---|---|
| Excitation/supply (acceptable) | 0.5V to 7V rms, 2kHz to 10kHz (sinusoidal) |
| Excitation/supply (calibrated) | 5V rms, 5kHz (sinusoidal) |
| Output load | 100k Ohms |
| Temperature coefficient (span) | ±0.01% F.S. /°C (typical) |
| Operating temperature range | -20°C to 125°C |
| Electrical termination | 2m (integral cable) Longer available to order. |

Due to our policy of on-going development, specifications may change without notice. Any modification may affect some or all of the specifications for our equipment.

All dimensions and specifications are nominal.

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